

CLAIMS

What is claimed is:

1. A method for annotating a data object, the method comprising the steps of:

- creating a first digital fingerprint value of the data object, the data object stored at a first location;
- creating a first annotation object;
- creating a first relationship relating the first digital fingerprint value to the first location;
- creating a second relationship relating the first digital fingerprint value to the first annotation object; and
- saving in an annotation store any one of the first relationship or the second relationship.

2. The method according to claim 1 wherein the first digital fingerprint value is created from any one of the digital data of the object, the digital data of one or more portions of the object, the digital data of the object combined with other digital data or the digital data of the location of the object.

3. The method according to claim 1 wherein the digital fingerprint value is created using any one of a checksum algorithm, a cyclic redundancy check, a hash algorithm, the SHA-256 secure hash algorithm, the SHA-1 secure hash algorithm or the MD5 message digest algorithm.

4. The method according to claim 1 comprising the further steps of:

- creating a second annotation object;
- creating a third relationship the third relationship relating the first digital fingerprint to the second annotation object; and
- saving the third relationship in the annotation store.

5. The method according to claim 1 comprising the further steps of:

- locating the data object at a second location;
- creating a fourth relationship relating the first digital fingerprint to the second location; and
- saving the fourth relationship in the annotation store.

6. A method for accessing an annotated data object, the method comprising the steps of:

- obtaining a first digital fingerprint value for a data object;
- finding any one of a first annotation object having a relationship to the first digital fingerprint value or the data object having a relationship to the first digital fingerprint value; and
- retrieving any one of the first annotation object or the data object.

7. The method according to claim 6 wherein the finding step comprises the further step of querying an annotation store for an entry containing the first digital fingerprint value and a first relationship of the first digital fingerprint to any one of an annotation object or the location of the data object.

8. The method according to claim 6 wherein the obtaining step comprises the further step of any one of:

calculating the first digital fingerprint value of the data object; or

querying an annotation store for a second annotation object and the first digital fingerprint associated with the second annotation object.

9. A method for accessing a data object, the method comprising the steps of:

retrieving at a first location a first digital fingerprint value of a first data object, a first annotation object related to the first digital fingerprint and a first identity of a second location related to the first digital fingerprint, the second location comprising location of the data object;

retrieving the data object from the second location; and

relating the first annotation object with the data object retrieved.

10. The method according to claim 9 wherein the retrieving step comprises the further steps of:

 determining that the data object is not at the second location;

 searching a second database for data objects having the first digital fingerprint; and

 retrieving the data object from a third location in the second database.

11. The method according to claim 10 further comprising the step of repeating the steps of claim 10 according to a predetermined plan.

12. The method according to claim 9 comprising the further step of recording at the first location, the first relationship of the first digital fingerprint value and third location of the data object retrieved from the second database.

13. A method for annotating a data object, the method comprising the steps of:

 associating a digital fingerprint value of a first data object with a first location of the first data object;

 associating the digital fingerprint value of the first data object with a second location of a second data object; and

 associating the first data object with the second data object using the digital fingerprint value of the first data object.

14. A system for annotating a data object, the system comprising:
a value creator creating a first digital fingerprint value of the data object the data object stored at a first location;
an object creator creating a first annotation object;
a first creator creating a first relationship relating the first digital fingerprint value to the first location;
a second creator creating a second relationship relating the first digital fingerprint value to the first annotation object;
and
a saver saving in an annotation store any one of the first relationship or the second relationship.

15. The system according to claim 14 wherein the value creator creates the first digital fingerprint value from any one of the digital data of the object, the digital data of one or more portions of the object, the digital data of the object combined with other digital data or the digital data of the location of the object.

16. The system according to claim 14 wherein the value creator creates the digital fingerprint value using any one of a checksum algorithm, a cyclic redundancy check, a hash algorithm, the SHA-256 secure hash algorithm, the SHA-1 secure hash algorithm or the MD5 message digest algorithm.

17. The system according to claim 14 further comprising:
 a third creator creating a second annotation object;
 a fourth creator creating a third relationship the third relationship relating the first digital fingerprint to the second annotation object; and
 a second saver saving the third relationship in the annotation store.
18. The system according to claim 14 further comprising:
 an object locator locating the data object at a second location;
 a fifth creator creating a fourth relationship relating the first digital fingerprint to the second location; and
 a third saver, saving the fourth relationship in the annotation store.
19. A system for accessing an annotated data object, the system comprising:
 an obtainer obtaining a first digital fingerprint value for a data object;
 a finder finding any one of a first annotation object having a relationship to the first digital fingerprint value or the data object having a relationship to the first digital fingerprint value; and
 a retriever retrieving any one of the first annotation object or the data object.

20. The system according to claim 19 wherein finder further comprises a queryer querying an annotation store for an entry containing the first digital fingerprint value and a first relationship of the first digital fingerprint to any one of an annotation object or the location of the data object.

21. The system according to claim 19 wherein the obtainer further comprises any one of:

- a calculator calculating the first digital fingerprint value of the data object; or

- a second queryer querying an annotation store for a second annotation object and the first digital fingerprint associated with the second annotation object.

22. A system for accessing a data object, the system comprising:

- a first retriever retrieving at a first location, a first digital fingerprint value of a first data object, a first annotation object related to the first digital fingerprint and a first identity of a second location related to the first digital fingerprint, the second location comprising location of the data object;

- a second retriever retrieving the data object from the second location; and

- a relater relating the first annotation object with the data object retrieved.

23. The system according to claim 22 wherein the second retriever further comprises:

a determiner determining that the data object is not at the second location;

a searcher searching a second database for data objects having the first digital fingerprint; and

a third retriever retrieving the data object from a third location of the second database.

24. The system according to claim 23 further comprising a repeater, repeating the operation of the system of claim 23 according to a predetermined plan.

25. The system according to claim 22 further comprising a recorder recording at the first location the first relationship of the first digital fingerprint value and third location of the data object retrieved from the second database.

26. A computer program product for annotating a data object, the computer program product comprising a computer readable medium having computer readable program code therein comprising:

computer readable program code for creating a first digital fingerprint value of the data object the data object stored at a first location;

computer readable program code for creating a first annotation object;

computer readable program code for creating a first relationship relating the first digital fingerprint value to the first location;

computer readable program code for creating a second relationship relating the first digital fingerprint value to the first annotation object; and

computer readable program code for saving in an annotation store any one of the first relationship or the second relationship.

27. The computer program product according to claim 26 wherein the first digital fingerprint value is created from any one of the digital data of the object, the digital data of one or more portions of the object, the digital data of the object combined with other digital data or the digital data of the location of the object.

28. The computer program product according to claim 26 wherein the digital fingerprint value is created using any one of a checksum algorithm, a cyclic redundancy check, a hash algorithm, the SHA-256 secure hash algorithm, the SHA-1 secure hash algorithm or the MD5 message digest algorithm.

29. The computer program product according to claim 26 further comprising:

computer readable program code for creating a second annotation object;

computer readable program code for creating a third relationship the third relationship relating the first digital fingerprint to the second annotation object; and

computer readable program code for saving the third relationship in the annotation store.

30. The computer program product according to claim 26 further comprising:

computer readable program code for locating the data object at a second location;

computer readable program code for creating a fourth relationship relating the first digital fingerprint to the second location; and

computer readable program code for saving the fourth relationship in the annotation store.

31. A computer program product for accessing an annotated data object, the computer program product comprising a computer readable medium having computer readable program code therein comprising:

computer readable program code for obtaining a first digital fingerprint value for a data object;

computer readable program code for finding any one of a first annotation object having a relationship to the first digital fingerprint value or the data object having a relationship to the first digital fingerprint value; and

computer readable program code for retrieving any one of the first annotation object or the data object.

32. The computer program product according to claim 31 wherein the computer readable program code for finding further computer readable program code for querying an annotation store for an entry containing the first digital fingerprint value and a first relationship of the first digital fingerprint to any one of an annotation object or the location of the data object.

33. The computer program product according to claim 31 wherein the computer readable program code for obtaining further comprises any one of:

computer readable program code for calculating the first digital fingerprint value of the data object; or

computer readable program code for querying an annotation store for a second annotation object and the first digital fingerprint associated with the second annotation object.

34. A computer program product for accessing a data object, the computer program product comprising a computer readable medium having computer readable program code therein comprising:

computer readable program code for retrieving at a first location, a first digital fingerprint value of a first data object, a first annotation object related to the first digital fingerprint and a first identity of a second location related to the first digital fingerprint, the second location comprising location of the data object;

computer readable program code for retrieving the data object from the second location; and

computer readable program code for relating the first annotation object with the data object retrieved.

35. The computer program product according to claim 34 wherein the computer readable program code for retrieving further comprises:

computer readable program code for determining that the data object is not at the second location;

computer readable program code for searching a second database for data objects having the first digital fingerprint; and

computer readable program code for retrieving the data object from a third location of the second database.

36. The computer program product according to claim 35 wherein the computer readable program code of claim 35 is repeated according to a predetermined plan.

37. The computer program product according to claim 34 further comprising computer readable program code for recording at the first location, the first relationship of the first digital fingerprint value and third location of the data object retrieved from the second database.